between the vertical and the slope of the curve ; if more than one, it will slope the other way, if it is negative the slope will be less than that of the curve. In order to apply a general rule to all possible cases where both the index connecting x and y and the index connecting the result (y) with the variation of the constant may have any values whatever, it is merely necessary to find a point a upon the inclined straight line representing $y = ax$, at which y is equal to a, or to that part of a which may assume various values. At any distance above it rule a horizontal line. Where the horizontal line cuts the inclined line, write the figure 0; where it cuts the vertical through the point a, write the figure $+1$. Then complete a scale of equal parts on the horizontal line extending to $+\infty$ and $-\infty$. Lines drawn through the original point a and any point q on this scale will be scale lines corresponding to the case where the result depends upon the qth power of the constant as well as upon the bth power of x.

The frequency curve placed upon the same chart has two branches inclined at $\tan^{-1} - \frac{3}{2}$ and $\tan^{-1} - \frac{1}{2}$, joined by a curve such that not only on the straight branches, but at every point, the algebraical difference of the tangent of its inclination and that of the velocity curve for the same value of x the wave-length is equal to unity. The left-hand branch of the frequency curve supplies another example of the rule given above for drawing a scale line ; for, while its tangent is $-\frac{3}{2}$, that of the scale line is -3.

It is evident that the curve may be conveniently drawn upon tracing-paper, which may then be moved about, but always keeping the inclinations unchanged until the branches pass through the desired points upon the scale lines. The numerical relations for the new constants may then be read at once.

I have thought it best to explain the method by the use of a concrete example. Of course it is not limited to the case of ripples and waves, but may be applied very widely.

By way of illustrating how to change from one system of units to another, I have drawn a pair of double-ended arrows in the middle of the chart, which show the magnitude and direction of the movement of each of the curved lines with its straight dotted continuations, which will be necessary in order to read the results in inches instead of in centimetres. The one relating to velocities is inclined at 45°, as both the velocity and wave-length are equally changed in the ratio of 2·54 : 1, or 1 : ·3937. On the other hand, the frequency being a mere number is not affected, except in so far as the wave-length will be expressed by a different number. Hence the direction of sliding is here horizontal and the same in amount as either component of the other. The scale lines must then be put in parallel to their former directions, and running through points for which the vertical scale reading has the numerical value of the constant according to the system of units chosen. C. V. BOYS.

[*Note.*—The numerical values represented by the vertical and horizontal lines in each square in the diagram are 1, 1·5, 2, 2·5, 3, 3·5, 4, 4·5, 5, 5·5, 6, 6·5, 7, 7·5, 8, 9, 10. The number of lines in the Human sheets is five times as great, but they are drawn in three degrees of darkness to distinguish them.—C. V. B.]

NOTES.

A REPRESENTATIVE meeting of friends and admirers of the late Mr. Huxley was held on Thursday afternoon, at the rooms of the Royal Society, under the chairmanship of Lord Kelvin, P.R.S., to consider what steps should be taken to initiate a national memorial. It was determined to call a general public meeting after the autumn recess, and, in the meantime, to form a general committee. Sir John Lubbock (15 Lombard-street) has consented to act as treasurer, and Prof. G. B. Howes (Royal College of Science, South Kensington) as secretary to the provisional committee.

WE notice, also, that it is proposed to establish a memorial to commemorate the connection of Huxley with the Charing Cross Hospital Medical School. At a meeting held at the School on Tuesday, the following resolution was passed :—"That the memorial shall take the form of a Huxley scholarship and medal to be awarded annually at the Charing Cross Hospital Medical School, and that if funds permit an annual public lecture at the Charing Cross Medical School dealing with recent advances in science, and their bearing upon medicine shall be instituted."

WE understand that a large majority of those Fellows of the Royal Society who have expressed an opinion on the matter, being in favour of retaining the present quarto form of the *Philosophical Transactions*, the President and Council have decided to retain that form. As stated in a circular recently addressed to Fellows, the President and Council, finding that the majority of those expressing their opinion were in favour of a royal octavo form for the *Proceedings*, have decided to adopt that form. The change will probably be made at the beginning of next year.

SEVERAL new instances of generous gifts for the advancement of scientific knowledge are reported in *Science*. Mr. Archibald, President of the Trustees of Syracuse University, has offered to be one of six subscribers for funds to build a hall of science costing about £30,000. The University has also been offered £2000 and £20,000 towards a new medical college. Another American institution which has benefited by the epidemic of generosity which has lately prevailed in the United States is the Johns Hopkins University, which has received from Mrs. Williams a sum of money sufficient to establish a lectureship in geology in memory of the late Prof. George H. Williams. Sir Archibald Geikie has been invited to be first lecturer.

THE sum of £50,000 required for the New York Botanic Garden has been contributed by twenty-two donors. Subscriptions of £5000 were given by each of the following :—Mr. J. P. Morgan, Columbia College, Mr. Andrew Carnegie, Mr. C. Vanderbilt, Mr. J. D. Rockefeller, Mr. D. O. Mills, Judge A. Brown. Mr. Wm. E. Dodge, Mr. J. A. Scrymser, and Mr. Wm. C. Schermerhorn each gave £2000, and there were eight subscribers of £1000 each. The act of incorporation required that this amount be collected for an endowment. The city must now raise £100,000 by bonds for building purposes, and provide 250 acres of land in Bronx Park. This part of the agreement will probably soon be carried out, so New York may look to possessing shortly a botanic garden of the first order. Writing with reference to the prospect in *Science* of July 5, Prof. G. L. Goodall, of Harvard University, remarks : "To Columbia College and the other educational institutions of New York and vicinity, this new appliance for instruction will mean indeed a great deal. To all the citizens who are to take advantage of the opportunities for instruction which the garden will afford, Bronx Park will be a constant delight. But far beyond these limits, wide as they are, the garden will exert a profound and beneficial influence. Other cities will surely be stimulated by this noble movement and enrich their park systems with an educational aid of the greatest value. Formerly botanic gardens, attached even in a remote manner to educational institutions, were largely used for the cultivation of medicinal plants, and for the reception of species from distant lands. Of course, this use, although its importance is now relatively less than ever before, will still long continue to be a factor in the direction of activities. But here and there new phases of plant relations are being displayed in the greater gardens, and with the most gratifying results. Geographical questions are asked and answered by skilful grouping of species, and in the most attractive way. The bearing of climate on the structure, habit, and possibilities of plants is made prominent in an interesting fashion. The capabilities of useful plants and the extension of their range of usefulness comprise another phase of illustration which always sets visitors to thinking. Beyond and, we may say, above these questions, which are pretty strictly utilitarian, there comes nowadays another class of illustrations which are of the highest educational value in a community, namely, the biological features which are invested with such important relations to all departments of intellectual activity."

We regret to announce the death of Prof. F. Tietjen, for many years past Director of the Recheninstitut of the Berlin Observatory, and editor of the *Berliner Astronomisches Jahrbuch*; also of Prof. G. F. W. Spörer, of the Potsdam Observatory, well known amongst astronomers for his solar observations.

A statue to Boussingault was unveiled at the Paris Conservatoire des Arts et Métiers last week. The French Minister of Agriculture, who presided at the inauguration, pointed out how very largely Boussingault's work had benefited agriculture. The funds for the erection of the monument were raised by public subscription, through a Committee of which M. Schloesing was the president.

A few days ago, the Municipal Council of Paris, and the General Council of the Seine, presented Dr. E. Roux, who has devoted so much attention to the anti-toxic serum treatment of diphtheria, with two gold medals struck in his honour. M. Pasteur was unable to be present on account of ill-health, but he sent a letter in which he expressed his great gratification at the way in which the municipality were publicly expressing their appreciation of the work of his pupil and collaborator.

Sir William H. Flower, K.C.B., has been elected a Correspondant of the Paris Academy of Sciences; and Prof. Cohn has been elected to succeed the late Marquis de Saporta, as Correspondant in the Section of Botany.

The death is announced of Dr. Hermann Knoblauch, President of the Kaiserliche Leopoldinisch-Carolinische Akademie of Halle. He died in the seventy-sixth year of his age on June 30th.

Dr. Fabian Franklin, Professor of Mathematics in the Johns Hopkins University, has resigned his position in order to take up editorial work on the *Baltimore News*.

M. Paul Sintenis has returned from Turkish Armenia with large collections of rare plants.

Sir Edward Lawson will distribute the prizes to the students of the Charing Cross Hospital Medical School this afternoon, at 4 o'clock. Next Thursday evening, the distribution of prizes to the students of the Dental Hospital of London will be made by Sir William MacCormac, at a conversazione to be held in the Royal Institute Galleries, Princes Hall, Piccadilly.

The University of Chicago has decided to add Terrestrial Physics to the subjects taught in the Physical Department under Prof. Michelson, says the *American Meteorological Journal*. Dr. L. A. Bauer has just commenced courses in terrestrial magnetism, thermodynamics of the atmosphere, and dynamic meteorology. This step marks a new era in the development of the study of meteorology in the United States.

Prof. F. Omori, of the Seismological Institute of Tokio, contributes an interesting paper on the velocity of earthquake-waves to the *Bollettino* of the new Italian Seismological Society (vol. i., 1895, pp. 52–60). The chief value of his investigation lies in the fact that the distances traversed are generally short and the times exceedingly accurate, so that we thus obtain some idea of the surface-velocity in the neighbourhood of the epicentre. The mean velocity for twenty-five earthquakes (1891–94) is found to be 2·04 km. per second. Prof. Omori also shows that for earthquakes originating in the same region, the velocity is practically constant, whatever be the intensity of the initial disturbance or the distance of the place of observation from the centre.

The prizes and medals of the Paris Société d'Encouragement have just been awarded. The prize of twelve thousand francs (£480), awarded every six years to the author of the most useful discovery to French industry, has been given to Prof. Lippmann, for his method of photographing colours. Among the other awards we notice the following: Prize of 2000 francs to M. F. Osmond for his works on the microscopic analysis of steel, of which an account is given in the May *Bulletin* of the Society; 500 francs to M. Garçon for his work on "La Pratique du teinturier"; 1000 francs to M. Ch. Tellier, 500 to M. Lacroix, 500 to M. Maignen, and 500 to M. Schlumberger, for the purification of potable waters; 500 francs each to M. Lartigue and M. Roux for their investigations in connection with the electrical installations; 1000 francs to M. Guerrier, 500 francs to M. Allard, and 500 francs to M. Martin for their agricultural studies. The grand gold medal, awarded every six years for works which have exercised the greatest influence upon the progress of French industry during the preceeding six years, has been given to the Comité de l'Afrique française for their great services to African colonisation.

The current number of the *Annales de l'Institut Pasteur* contains an official account of the antirabic inoculations carried out at the Pasteur Institute in Paris during the past year. From this it appears that 1387 persons were treated, out of which seven died subsequently. On comparing the statistics for last year with those compiled for 1893, we find that although the total number of admissions fell short last year by 261 of the figure reached in the previous year, yet England's contribution in the shape of patients rose from 23 in 1893 to as many as 128 in 1894. Thus, in spite of the broadcast circulation of a vast amount of sentimental opposition to the carrying out of Pasteur's antirabic treatment in this country, we appear to be developing an increasing desire to avail ourselves of the benefits to be derived from its use across the Channel! In all, 226 foreigners were treated in the Institute last year; Spain and Greece each sending 26; Belgium, 16; Turkey, 7; Russia and Egypt, 1 each; and Holland, 2; whilst under the heading "Indes Anglaises" we find 19 as compared with 14 last year.

In connection with the questions lately raised as to the relation of spectra to molecular structure, it is interesting to recall a paper by Prof. Eder and and Mr. Valenta, communicated to the Vienna Academy a year ago. Mr. J. S. Ames summarises the paper in the May *Astrophysical Journal* as follows:—"The paper deals with the different spectra of mercury. Observations on the arc and spark-spectra and on the ordinary Geissler tube discharge showed that all three were alike, the most prominent lines in one spectrum being also the most prominent in the others. But two entirely new spectra were discovered. If mercury vapour is distilling at a low pressure through a capillary tube, and if a spark be passed through it, spectra are observed which are quite distinct from the ordinary one. If there is a large number of Leyden jars in circuit, the spectrum consists of an *immense* number of fine, sharp lines; but if there are no jars in circuit, the spectrum is entirely changed; it becomes a series of bands whose edges are towards the red. One spectrum is just as complete as the other, neither one being a development of the other. The band spectrum corresponds to a trifle lower temperature than the new line spectrum; but it is difficult to see how complexity of molecular structure can account for the difference between the two spectra in the case of mercury, whose vapour is monatomic. This has, of course, a most important bearing on the theory of band and line spectra, and seems to decide definitely against some of the present ideas concerning them."

THE current number of *Wiedemann's Annalen* contains a paper by Herr J. E. Myers on the influence of gases dissolved in the electrolyte of a silver voltameter on the weight of deposited silver. The author finds, as has previously been shown by Schuster and Crossley, that if the same current is sent through two voltameters containing neutral solutions of silver nitrate of the same strength and at the same temperature, one voltameter being in a vacuum and the other in air, then the weight of the silver deposited in the vacuum voltameter is, for a solution containing from 20 to 40 per cent. of silver nitrate, about 0·1 per cent. greater than that of the silver deposited in the other voltameter. For a 5 per cent. solution, the difference is somewhat smaller. If the solution is saturated with carbon dioxide the deposit is about 0·055 per cent. lighter than when the solution is saturated with air. With nitrogen, however, the deposit is about 0·05 per cent. heavier than with air. The electrical resistance of a 5 per cent. solution saturated with air is practically the same as that of the same solution in a vacuum. With a current of more than 0·25 ampere, it is found that in vacuum an evolution of gas takes place at the anode. The author has also examined the grey deposit which is formed on the anode, and finds that it consists of pure silver oxide.

THE results of some observations on declination made by M. Ch. Lagrange, which, if unaffected by some unsuspected error, are most unexpected, are given in a recent number of the *Comptes rendus* (June 17, 1895). During the last three years the author has been making observations of declination at the Uccle Observatory at Brussels, using for this purpose magnets having very different magnetic moments. He finds that systematic differences occur in the values obtained, but what is most astonishing is that diminution, within certain limits, of the magnetic moment of the magnet causes an amplification of the observed changes in declination. In one set of observations, lasting for six months, one of the magnets consisted of the almost astatic magnetic system taken from a galvanometer. By comparing the readings obtained with this system of magnets with those obtained on the self-registering magnetometers, it was found that the amplitude of the movements of the galvanometer needle was from fifteen to twenty-five times as great as that of the magnetometer needle. Another set of observations have been made with a large steel magnet, only feebly magnetised, however, so that its magnetic moment was only about $\frac{1}{40}$ of that of the magnet of the magnetograph. This magnet was suspended by a fine platinum wire, and here again the amplitude of movement of the feebly magnetised bar was greater than that of the more strongly magnetised one.

WE have received *Bulletins* Nos. 119–124 of the Michigan Agricultural Experiment Station, dealing with a variety of subjects of horticultural interest. With regard to the troublesome disease of tomato rot, which is often the cause of serious loss, it is stated that spraying with Bordeaux mixture is efficacious. Last season, when the tomatoes had grown to the size of hickory nuts, the plants were given a thorough spraying, and three weeks later the application was repeated. Very little rot was noticed on the sprayed plants, whilst on those which were purposely left unsprayed many diseased fruits were to be seen. In the summary of results of experiments with potatoes, it is said that potatoes deteriorate rapidly under ordinary cultivation, and it is necessary to frequently change seed in order to keep them in their pristine purity and excellence. We need go no farther than Ireland, with its worn-out variety of the Champion potato, for a case in point. As a treatment for apple-scab (*Fusicladium dendriticum*, Fckl.) it is recommended to thoroughly spray the trees, before growth begins in spring, with copper sulphate solution. This should be followed with an application of Bordeaux mixture as soon as the blossoms have fallen. In a wet season two or three more dressings will be necessary to produce the best results. The addition of Paris green to the second and third applications will keep the codlin-moth and the canker-worm in check. A caution is given never to spray with arsenites when fruit-trees are in bloom, or the bees will be killed.

AN attempt at a partial restoration of the geography of the world in Cretaceous times is made by Dr. F. Kossmat, of Vienna, in the May number of the *Records* of the Indian Geological Survey. He recognises the broad distinction of Atlantic and Pacific faunal provinces in Cretaceous times, a distinction very marked in the northern hemisphere, but disappearing to the south of the then existing Indo-African continent. The Cretaceous beds of Southern India form the clearest link between the two; combining in their fauna the typical Pacific forms with others characteristic of Central Europe. Their connection with the latter area was a roundabout one, through Natal, Angola, and the Atlantic, by which they are also linked to the Cenomanian and Danian deposits of Brazil. The fauna of Northern India is quite distinct, and must be regarded as inhabiting the easterly termination of the Mediterranean province, one which was an almost isolated area, though to the westward, in the Gosau beds and those of Southern France, we can see evidence of a connection with the Atlantic. Further west a similar fauna is found in the Antilles, and extends even into the Pacific region in Peru. The fauna of North America shows close affinities with that of Europe, and less marked relations to that of Southern India, while it stands sharply contrasted with that of the Pacific side of the continent. The upper Cretaceous beds of Atlantic facies are found, however, to extend into British Columbia and Queen Charlotte's Islands, and there rest upon lower Cretaceous beds of Pacific facies. The American continent must thus have existed as two great insular masses forming a barrier between the two great marine provinces, broken across by two arms of the sea. The author purposes constructing a chart to embody these conclusions.

THAT quite a considerable number of bacteria exist which will only grow at such high temperatures as lie between 50° and 70° C., was first shown by Globig; but his investigations only succeeded in demonstrating them in the superficial layers of soil. Now, however, we know that such bacteria are to be found in river water and mud, in fœces, and at considerable depths in the soil. Quite recently Dr. Lydia Rabinowitsch has made extensive researches in Dr. R. Koch's laboratory on these so-called thermophilic bacteria, and their distribution appears to be much wider than was at first supposed. Thus Dr. Rabinowitsch has found them abundantly present in surface soil collected from various parts of Berlin and other places in Germany; they were also discovered in freshly-fallen snow, indicating their probable presence in the air, and large numbers were obtained from river Spree water, although they were not found in the Berlin water supply; they were also isolated from excrementitious matter derived from horses, cows, goats, dogs, rabbits, ducks, parrots, some fish and other cold-blooded animals, such as the frog and python. These bacteria are also present in large numbers in the mouth and all along the intestinal tract of man. Cow's milk contains them, and they are not destroyed even when the latter is vigorously boiled. The most favourable temperature for the growth of these thermophilic bacilli lies between 60° and 70° C., but they may be induced to grow also between 34° and 44° C. It would be interesting to learn what part is played by these bacteria in nature, and it is to be hoped that Dr. Rabinowitsch will continue these investigations, and instruct us as to these functions of thermophilic bacteria.

Dr. J. Hann has sent us a copy of his paper on the conditions of atmospheric electricity on the summit of the Sonnblick mountain, deduced from the records of an improved registering hair hygrometer by Richard, which had been adjusted and tested at the Central Meteorological Office in Vienna. The discussion is one of much importance, and the subject is treated by Dr. Hann in a very thorough manner; but the space at our disposal will only allow us to notice briefly some of the general results. The yearly range of relative humidity on the mountain is the reverse of what it is over the plains; the minimum, or greatest dryness, occurs in winter, and the maximum in spring and summer. This much was known from observations at Alpine stations, but at these the uncertainty of the behaviour of the hygrometers in low temperatures made the results doubtful. Temperature and vapour pressure on the Sonnblick run in nearly parallel curves, each degree of difference of temperature corresponds to a change of tension of vapour in the same direction. With regard to the daily range, it is found that in all, except the three winter months, there is low relative humidity in the morning and a great humidity during the evening and night. In winter, however, the case is very different; from about 6h. p.m. to 7h. a.m. the relative humidity remains below the mean, and from 9h. a.m. to 5h. p.m. it is above the mean. The daily range of absolute humidity (vapour tension) is nearly the same in all seasons of the year; the minimum occurs early in the morning, and the maximum in the afternoon. The most remarkable feature in the daily range of relative humidity is that on very clear and warm days, long before the rise of the sun has any effect, the humidity falls below the mean value on the Sonnblick, and by about 6h. in the morning, it has fallen nearly 7 per cent. below the daily mean. This important fact seems to show that the relative dryness of the forenoon on mountains is due to a descending movement of the atmosphere, caused by the winds blowing from the mountains to the valleys during night-time, and thus cooling the sides of the mountains.

The July *Journal* of the Chemical Society contains the paper on "Helium, a Constituent of certain Minerals," by Prof. W. Ramsay, Dr. J. Norman Collie, and Mr. M. Travers, read before the Society at the last meeting. There are also fifteen other papers read before the Society, and 138 pages of abstracts of chemical papers published in other journals.

With the current number, the *Medical Magazine* enters upon its fourth year of issue. The magazine is always readable, not only by members of the medical profession, but by the laity, and the papers which it publishes on medical history and literature are invariably of general, as well as technical, interest. We notice among the articles in the number before us, one on "Mountain Sickness," by Dr. H. Kronecker; and another on "Immunity," by Dr. J. G. Sinclair Coghill.

Under the title *Beiträge zur wissenschaftlichen Botanik* a new contribution to general botanical literature is announced, to be edited by Dr. M. Fünfstück, and published by Nägele, of Stuttgart. The first number, which is already published, contains papers on the physiology of woody plants, by Lutz; on the action of "Bordeaux-brühe" and its constituents on *Spirogyra longata* and on the uredespores of *Puccinia coronata*; and on the oily excretions of calcareous lichens, by the editor.

The report for 1894 of the American Museum of Natural History shows that a number of valuable specimens were added to the collections last year. The new wing, for the building and equipment of which 550,000 dollars (£110,000) were voted in 1893 and 1894, is approaching completion, and is expected to be opened to the public in the autumn. Since the preparation of the report, the Legislature has given power to the authorities of New York City to appropriate £100,000 for a further enlargement of the museum, and for an increased grant of £4000 annually, for maintenance. The erection and equipment of another wing to the museum will provide the facilities for carrying out the plans of the Trustees for the establishment of a great department of Anthropology.

The report of the Trustees of the South African Museum, for the year 1894, has been received. As the staff of the museum does not include collectors, it is gratifying to learn that nearly seven thousand specimens were presented by private collectors during last year. That the museum is appreciated is evidenced by the fact that the number of visitors in 1894 was nearly twenty-six thousand. The Curator, Mr. R. Trimen, has completed the manuscript of descriptions of new Lepidoptera from Mashonaland, which will be published at the beginning of the year. He has also begun the incorporation of the tropical African insects of this order in the South African collection, adopting the 16° of latitude S. as the South African limit. The staff has been increased by the appointment of Dr. G. S. Corstorphine as assistant in the department of geology and mineralogy. A report by him, on the existing collection of that department as at present exhibited, is appended to the report of the Trustees.

The additions to the Zoological Society's Gardens during the past week include a Campbelli Monkey (*Cercopithecus campbelli*) from West Africa, presented by Miss C. Thompson; a Yellow-billed Sheathbill (*Chionis alba*), captured at sea, presented by Captain Plunket; four Common Chameleons (*Chamæleon vulgaris*) from Egypt, presented by Mr. J. C. Mitchell; a Sharp-nosed Crocodile (*Crocodilus acutus*) from Columbia, presented by Mr. James G. Green; a Royal Python (*Python regius*) from West Africa, presented by Colonel Frederick Cardew; an Alexandra Parrakeet (*Polytelis alexandræ*) from Australia, six Grey Francolins (*Francolinus ponticerianus*) from Mombassa, a Black Tortoise (*Testudo carbonaria*) from South America, deposited; five Fennec Foxes (*Canis cerdo*), two Variegated Jackals (*Canis variegatus*), two Libyan Zorillas (*Ictonyx lybica*), two Egyptian Cats (*Felis chaus*), three Dorcas Gazelles (*Gazella Dorcas*), four White Pelicans (*Pelecanus onocrotalus*), a Grey Monitor (*Varanus griseus*), from Cairo, received in exchange; a Wapiti Deer (*Cervus canadensis*), two Short-headed Phalangers (*Belideus breviceps*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

The New Madras Observatory.—Prof. Michie Smith, the successor of Mr. Pogson at Madras, has lately made known a few particulars relating to the new Solar Physics Observatory which is to be erected in India. The funds have been voted by the Indian Government, and the site selected is in the Palani Hills at Kodaikanal, 300 miles south of Madras. The daily work of photographing the sun, which is now carried on for the Solar Physics Committee at Dehra Dûn by the officers of the Indian Trigonometrical Survey, will form part of the routine work of the new observatory. It is also proposed to undertake a systematic spectroscopic examination of the sun, but the details of this portion of the programme have not yet been finally determined upon. The climate of Kodaikanal seems to be almost all that can be desired for astronomical purposes. The mean daily temperature varies from 54°·1 C. in December to 62°·2 C. in May, while the rainfall is about 47½ inches. From March to December in the year in which observations were